

# MONTHLY NOTICES

## OF THE

### ROYAL ASTRONOMICAL SOCIETY.

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VOL. XXVII.

June 14, 1867.

No. 8.

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Rev. Charles Pritchard, F.R.S., President, in the Chair.

Capt. Henry Wood, 16 St. John's Wood Park ;  
 Charles Judd, Esq., Foundation School, Leman Street ; and  
 Commr. Edmund Hope Verney, R.N., Travellers' Club,

were balloted for and duly elected Fellows of the Society.

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*On Certain Appearances of the Telescopic Images of Stars described by the Rev. W. R. Dawes.* By G. B. Airy, Astronomer Royal.

In a paper of unusual value, printed in the *Monthly Notice* of 1867, April 12th, Mr. Dawes has described (page 232) "the curious but annoying tendency which is occasionally seen in the telescopic disks of stars to become triangular, especially when the wind is in the east, or south-east." Mr. Dawes' experimental examinations of this appearance were sufficiently varied to prove that it did not depend on the object-glass of the telescope.

I read Mr. Dawes' description of this phenomenon without surprise ; in consequence of the following circumstance.

About thirty-five years ago, I had the pleasure of visiting Sir David Brewster at his residence in the neighbourhood of Melrose. Sir David then described to me the ocular appearance which had for some time annoyed him. As I gathered from his oral account, the appearance was of this kind. The visible field surrounding a luminous object was divided into three equal parts by three lines from the luminous object

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making with each other angles of  $120^\circ$  (I think that these were not visible as distinct lines, but are to be taken as imaginary lines dividing the phenomena next to be mentioned), and in each of these angular spaces were coloured curves of hyperbolic character. Sir David Brewster then informed me that he became convinced that these appearances arose from some chronic derangement of the stomach, and that he adopted a cautious medical treatment, and that at length the luminous curves disappeared suddenly.

Sir David Brewster has subsequently published an account of this observation in a paper in the *Transactions of the Royal Society of Edinburgh*, vol. xxiv., part i., afterwards reprinted in the *Philosophical Magazine*, 1865, part i., page 426, and bearing the title "On the Cause and Cure of Cataract." The account of the phenomenon in this paper agrees generally with that which I had heard so long before, although, naturally, it is not so vivid as that which was given in conversation at a time so much nearer to the occurrence.

Some time,—perhaps two or three years,—after this conversation, I saw the appearance myself. It was on an occasion of sorrow, when my whole nervous system was for the time disturbed, and when the eye was moist. It is my impression that in each of the three compartments, I saw two irregular hyperbolas, one surrounding the other.

I have never seen the appearance again. I do not doubt that the appearances noted by Mr. Dawes are of the same ocular class, and that they present themselves only when the nervous system is in some measure deranged. It is scarcely necessary to remark that such derangement very usually accompanies an east wind. In a remarkable instance mentioned by Mr. Dawes, east wind and fatigue were combined.

Another circumstance noticed by Mr. Dawes, page 267, is that at high altitudes stars require a longer focus (that is, the eye requires more convergent rays) than at low altitudes. I imagine this also to be ocular. In looking at a low star, the eye can be directed almost exactly towards the star; but in looking at a high star, it is difficult to direct the eye to a sufficiently great elevation, and the pencil of light will fall low on the retina. It is possible, but I cannot say whether it is certain, that greater convergence of the incident pencil is then necessary for accurate concentration on the retina.

Royal Observatory, Greenwich,

May 20, 1867.

Starr, Clark

note in 1867. See also No. 233

*Note on the alleged Change of Focus requisite in observing Stars widely separated in Altitude.* By Captain Noble.

On the 10th of May, a discussion took place at the Meeting in reference to an alleged change in the focal length of a tele-